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UTILITY PATENT APPLICATION TRANSMITTAL

Address to: Assistant Commissioner for Patents Box PATENT APPLICATION Washington, DC 20231	Attorney Docket No.	1431/USW 0391 PUS
	First Named Inventor	Russ L. Albert

1. This application entitled INTERNET-BASED DATABASE REPORT WRITER AND CUSTOMER DATA MANAGEMENT SYSTEM is:

- a. X A new application under 37 C.F.R. §1.53(b).
- b. A continuation divisional or continuation-in-part application under 37 C.F.R. § 1.53(b) of prior application Serial No. / filed on entitled .

Application elements and other attached papers:

2. X Specification [Total Pages 16]
3. X Drawings (X informal formal) [Total Sheets 2]
4. Oath or Declaration
- a. Newly-executed
- b. Copy from a prior application (37 C.F.R. § 1.63(d))
5. Incorporation By Reference: The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Item 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. This application is filed by fewer than all the inventors named in the prior application, 37 C.F.R. § 1.53(d)(4).
- a. **DELETE** the following inventor(s) named in the prior nonprovisional application:
- b. The inventor(s) to be deleted are set forth on a separate sheet attached hereto.

CERTIFICATION UNDER 37 C.F.R. § 1.10

I hereby certify that this UTILITY PATENT APPLICATION TRANSMITTAL and the documents referred to as attached therein are being deposited on the below date with the United States Postal Service in an envelope as "Express Mail Post Office to Addressee" addressed to: Assistant Commissioner for Patents, Box Patent Application, Washington, D.C. 20231.

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Angelika S. Phillips
 (Type or print name of person mailing paper)

Date of Deposit: December 31, 1997

Angelika S. Phillips
 (Signature of person mailing paper)

7. Preliminary Amendment:

- a. ☐ A Preliminary Amendment is attached.
- b. ☐ Cancel in this application original claims _____ of the prior application before calculating the filing fee.
- c. ☐ Please amend the specification by inserting before the first line the sentence:
- "This is a
☐ continuation
☐ divisional
of copending application(s)
☐ Serial number _____ / _____ filed on _____."
- d. ☐ A Petition to Suspend Prosecution For The Time Necessary to File An Amendment (New Application Filed Concurrently) is attached.

8. Small entity status:

- a. ☐ A small entity statement is attached.
- b. ☐ A small entity statement was filed in the prior nonprovisional application and such status is still proper and desired.
- c. ☐ Is no longer desired.

9. Fee Calculation:

FOR	NUMBER FILED	NUMBER EXTRA	RATE	CALCULATIONS
TOTAL CLAIMS (37 C.F.R. § 1.16(a))	12 -20 =		X 22.00	--
INDEPENDENT CLAIMS (37 C.F.R. § 1.16(b))	2 -3 =		X 82.00	--
MULTIPLE DEPENDENT CLAIMS (if applicable) (37 C.F.R. § 1.16(d))			270.00	
			BASIC FEE (37 C.F.R. § 1.16(a))	790.00
Total of above Calculations =				790.00
Reduction by 50% for filing by small entity (Note 37 C.F.R. §§ 1.9, 1.27, 1.28)				
Assignment Recordal Fee			40.00	
TOTAL =				790.00

10. ☐ A check in the amount of \$_____ is enclosed.
11. ☒ The Commissioner is hereby authorized to credit overpayments or charge the following fees (or any deficiency therein) to U S WEST, Inc. Deposit Account No. 21-0456:
- a. ☒ Fees required under 37 C.F.R. § 1.16.
- b. ☒ Fees required under 37 C.F.R. § 1.17.

12. Maintenance of Copendency of Prior Application

☐ A request for extension of time and the appropriate fee have been filed in the pending **prior** application (or are being filed in the prior application concurrently herewith) to extend the period for response until _____.

13. ☐ An Information Disclosure Statement (IDS) is attached, along with the following indicated attachments thereto:

a. ☐ Form PTO-1449 (_____ sheet(s))

b. ☐ Copies of references cited

14. ☐ Certified copy of priority document(s)

15. ☒ Return Receipt Postcard

16. ☐ Other: _____

17. ☐ An Assignment of the invention to U S WEST, Inc.

a. ☐ is attached with an Assignment Recordation form.

b. ☐ was recorded on _____ at Reel _____, Frame _____.

18. The power of attorney in the prior application is to:

Name of Attorney of Record

Reg. No.

☐ The power appears in the original papers in the prior application.

☐ The power does not appear in the original papers, but was filed on _____.

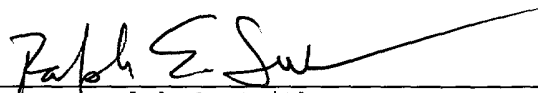
☐ A new power has been executed and is attached.

19. Correspondence Address: Please address all future communications to:

Judson D. Cary,
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Respectfully submitted,

Date December 30, 1997


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Registration No.: 35,474

☒ Attorney or agent of record
☐ Filed under Rule 34(a)

INTERNET-BASED DATABASE REPORT WRITER AND CUSTOMER DATA MANAGEMENT SYSTEM

Technical Field

5 The present invention generally relates to
processing of customer billing and inventory
information, and more particularly to improvements
which allow customer access to such information via an
Internet based connection.

Background Art

10 Generally, the dramatic growth in use of the
Internet has created greater opportunities for service
providers to introduce new services to customers which
are tailored to take advantage of the increased speed
and efficiency offered by the Internet.

15 One such area involves processing of
customer account data relating to services rendered,
and generating associated billing reports for each
customer. Of particular concern to the present
invention is providing access to customer billing and
20 inventory data to users located both in and outside a
service provider such as a telephone company.

25 To date, processing and billing arrangements
rely on traditional mailing of hardcopy bills to
customer premises, and automated telephone and service
support staff to allow users access to billing and
inventory data. As such, known arrangements have not
otherwise tapped the potential for increased

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efficiency and convenience offered by a graphical user interface (GUI) via the Internet. Alternative arrangements have been introduced, but are typically packaged on a CD-ROM or diskette and are severely
5 limited in capabilities to provide enhanced customer service. In other words, these known arrangements do not provide any drill down capability, entry of customer data, or comprehensive database access and management.

10 **Disclosure Of The Invention**

It is therefore an object of the present invention to provide a database report writer and customer data management system and method which increases convenience and efficiency of user access to
15 billing information.

It is another object of the present invention to provide a database report writer and customer data management system and method which allows user access via the Internet using a GUI.

20 It is yet another object of the present invention to provide a database report writer and customer data management system and method which allows a user to customize and save report definitions.

25 It is a further object of the present invention to provide a database report writer and customer data management system method which allows direct on-line user access to billing and other related customer information to provide the ability or opportunity to

[illegible][illegible][illegible][illegible]

Brief Description Of The Drawings

FIGURE 1 is a block diagram of an Internet based database report writer and customer data management system in accordance with the present invention;

FIGURE 2 is a block diagram illustrating the overall process of the report writer in accordance with the present invention;

FIGURE 3 is a block diagram of a view editor in accordance with the present invention; and

FIGURE 4 is a block diagram of a data manager in accordance with the present invention.

Best Mode For Carrying Out The Invention

Referring to Figure 1, an Internet based database report writer and customer data management system 10 in accordance with the present invention includes suitable programming to operate in conjunction with available Internet-type browser software. At least one customer/end user terminal 12 is connected to a host site 14 via a suitable Internet link on-line access 16.

In accordance with the present invention, an end user 12 can obtain from the host site one or more reports containing customer information stored in a database 18. In the preferred embodiment, such information relates to billing and other related customer data. In addition, interfacing between the

host site and an end user is preferably done using
JAVA applets and HTML pages or equivalents thereof.
However, this is not to be construed as limiting since
the present invention can be used with any information
5 delivery format capable of supporting a GUI type
interface. As noted above, each user can access the
views and reports using a conventional Internet
browser.

The host site 14 includes front-end
10 processor 20 for interfacing with the end users via
the Internet connection. Front-end processor 20 can
be implemented using any suitable web server hardware
or other microprocessor based central terminal. The
front-end logic generally operates to collect and
15 transmit session information through the use of JAVA
applets and HTML forms described below.

Figure 2 illustrates the overall process of
a database report writer and customer data management
arrangement 100 in accordance with the preferred
20 embodiment. User access to arrangement 100 is
provided through a main GUI type web page interface
100. From this interface, the user can use access a
view manager 102 hereinafter referred to as "Work with
Views," or a data manager 104 hereinafter referred to
25 as "Work with Data."

The Work with Views manager 102 is arranged
to provide a graphical display of a list of the views
a user can work with along with a set of function
commands which can be used to manage the views. A
30 "view" is a graphical container that stores a report
definition. A report definition can be edited or

created using a view editor 106 described in more detail below.

Using the Work with Views manager 102, a user can delete, run, create, edit, define a run-time filter for, extract data from, or determine the cost of running a view by selecting one of the set of predefined commands such as by double clicking with a mouse or similar input device associated function buttons graphically displayed on the Work with Views page.

The set of predefined commands provided by Work with Views manager 102 includes a directory tree type expand command 108 which expands a view by listing the reports stored therein. A delete command 110 is provided for deleting a view, which automatically deletes all reports contained therein, or an individual report within a view.

A run command 114 for running a view causes a table of contents to be displayed showing a list of all the reports contained within a selected view. Selecting a report from this list causes the report to be displayed in a predetermined area of the user display page.

A View Editor 106 allows the user to create new reports or edit existing ones. An edit command 112 is provided for selectively launching an uninitialized View Editor, or an initialized View Editor containing the definition of the report to be generated.

More specifically, in the preferred embodiment, the View Editor 106 is an Internet based editor for defining report templates to selectively control the fields of data stored in an Oracle database table to be displayed in a particular report. Such database tables are commonly employed for storing customer data, and are not suitable for direct Internet access by a user. As further described, the View Editor 106 allows for customization and storing of unique report definitions, i.e., views, thereby providing flexibility in viewing the content of Oracle database tables over the Internet. Flexibility and ease of use allow an end user to produce accessed reports locally at a user terminal 12 without the host site, i.e., the billing information or service provider, having to generate a plurality of custom programs which create the reports for each end users.

View Editor 106 is arranged in accordance with known programming code to operate within an "off the shelf" Internet browser. View Editor 106 allows the user to define a format and content of a report containing data from Oracle database tables. The user selects the fields or types of data to be generated in a report by choosing the desired columns from a list of database tables, such as titled "Business Data," that are to be added to a report. The column(s) can be added before or after a column has already been added to the report, or added as the first or last column in the report. Appropriate commands are provided to indicate where to add the column, i.e., first, last, before, or after.

Data from more than one database table can

be included in the report by simply scrolling through a list of database tables displayed in the web page interface and selecting a column from the available table(s). If selected, the tables will be joined when the report is executed.

Referring now to Figure 3, the View Editor includes a plurality of command selections for implementing desired editing functions. These plurality of commands include a Data Item command 200, a Drill Down command 202, a Level command 204, a Sort command 206, and a Total command 208. In addition, an add command function 210 is provided to add selected columns to a report.

The drill down command 202 allows the user to identify which report to drill down to when the report is run. When the drill down command is selected, a list of views and corresponding reports within those views is displayed. The user selects the view or report to be drilled down.

The level command 204 is provided to allow grouping of data in the report. Level command 204 is used to launch a Detail command 212, a Group command 214, and a Grp+Det command 216 to allow a selected column to be used as a grouping column. This will cause a group line to be inserted in the generated report every time the value of the column changes. The group line will contain all columns assigned a level of "Group."

The report can also contain both group lines and detail lines. This feature is selected by

launching Grp+Det command 216. The grouping function of level command 204 is disabled by launching Detail command 214.

Sort command 206 provides sorting of a
5 selected column in either ascending or descending
order. Total command 208 is used to total numeric
columns or count nonnumeric columns. Launching this
command causes the word "Total" to be graphically
10 displayed if the column is numeric, or the word
"Count" if the column is nonnumeric.

Headers and footers can be selectively
created by entering text in predetermined entry fields
located above and below the scrollable viewing area.
The header will appear near the top of the report and
15 the footer at the bottom.

In further accordance with the present
invention, accessing a simple filter editor 218 allows
quick and easy creation of a report content filter.
More specifically, editor 218 is formed as a selection
20 window for entry of custom filter values which operate
as a threshold for comparison with database columns to
selectively control which database rows will be
included in a report. The filter created using the
simple filter editor is preferably displayed
25 graphically, such as in a window box titled "Business
Data Filter."

For more complex filtering, a complex filter
editor 220 can be accessed. The filter created using
complex filter editor 220 is also preferably displayed
30 in the box titled "Business Data Filter."

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After editing is complete, the user can then save the view or report. Once saved, a user can generate and receive a report using the saved view to access the desired data currently stored in the Oracle database.

A filter can be defined before running a report if the user wants to limit the amount of data a report will contain, such as by limiting the report to a particular date. Thus, the filter provides a mechanism for reducing the size of a report.

Referring again to the Work with Views manager 102, extracting a view or report causes all the data that would be contained in the body of the report(s) if generated to be downloaded to a file on the user's workstation. Copying a view or report allows the user to copy an existing view or report.

The cost of a running a view or report is determined by the amount of data contained therein if the report were to be generated. Launching this command preferably causes a window to be displayed containing this information.

The Work with Data manager 104 displays a current listing of custom database tables created by the user along with a set of function commands used to manage them. The user can insert data into a database table, delete data from a database table, delete an entire database table, browse an existing database table, or create a new database table.

More specifically, as shown in Figure 4, a

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table delete command 300 causes the table contents to be deleted as well the table definition itself. An insert command 302 allows insertion into a database table by entering a value for each column of the
5 table. A browse command 304 causes a window to be displayed showing the contents of the database table. A row of the table can be selected for updating or deleting.

10 A create command 306 allows creation of a new table. The user enters a database table name and the name, type of data, length of data, and the number of decimal places (for numeric data) for each column of the database table being created.

15 Work with Data manager 104 allows a user to relate the customer billing and inventory data with data the customer provides and maintains. For example, a customer may use particular cost accounting codes which are assigned to particular telephone numbers to track telephony expenses. If a cost
20 accounting table were created containing these codes along with the corresponding assigned telephone numbers, the customer could display this information along with the telephone numbers in a report. Alternatively, the telephony charges could be totaled
25 using the assigned cost accounting, thereby allowing the customer to view billing data using the cost accounting codes as identification terms rather than the telephone number listed in the normal report.

30 While the best mode for carrying out the invention has been described in detail, those familiar with the art to which this invention relates will

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Parameter	Unit	Value	Standard Error	t-Statistic	p-Value
Intercept		0.0000	0.0000	0.0000	0.0000
Age	Years	0.0000	0.0000	0.0000	0.0000
Age squared	Years squared	0.0000	0.0000	0.0000	0.0000
Age cubed	Years cubed	0.0000	0.0000	0.0000	0.0000
Age quart	Years quart	0.0000	0.0000	0.0000	0.0000
Age quint	Years quint	0.0000	0.0000	0.0000	0.0000
Age sext	Years sext	0.0000	0.0000	0.0000	0.0000
Age sept	Years sept	0.0000	0.0000	0.0000	0.0000
Age oct	Years oct	0.0000	0.0000	0.0000	0.0000
Age non	Years non	0.0000	0.0000	0.0000	0.0000
Age dec	Years dec	0.0000	0.0000	0.0000	0.0000
Age ele	Years ele	0.0000	0.0000	0.0000	0.0000
Age twel	Years twel	0.0000	0.0000	0.0000	0.0000
Age thir	Years thir	0.0000	0.0000	0.0000	0.0000
Age four	Years four	0.0000	0.0000	0.0000	0.0000
Age fiv	Years fiv	0.0000	0.0000	0.0000	0.0000
Age six	Years six	0.0000	0.0000	0.0000	0.0000
Age sev	Years sev	0.0000	0.0000	0.0000	0.0000
Age eigh	Years eigh	0.0000	0.0000	0.0000	0.0000
Age nine	Years nine	0.0000	0.0000	0.0000	0.0000
Age ten	Years ten	0.0000	0.0000	0.0000	0.0000
Age elev	Years elev	0.0000	0.0000	0.0000	0.0000
Age twel	Years twel	0.0000	0.0000	0.0000	0.0000
Age thir	Years thir	0.0000	0.0000	0.0000	0.0000
Age four	Years four	0.0000	0.0000	0.0000	0.0000
Age fiv	Years fiv	0.0000	0.0000	0.0000	0.0000
Age six	Years six	0.0000	0.0000	0.0000	0.0000
Age sev	Years sev	0.0000	0.0000	0.0000	0.0000
Age eigh	Years eigh	0.0000	0.0000	0.0000	0.0000
Age nine	Years nine	0.0000	0.0000	0.0000	0.0000
Age ten	Years ten	0.0000	0.0000	0.0000	0.0000
Age elev	Years elev	0.0000	0.0000	0.0000	0.0000
Age twel	Years twel	0.0000	0.0000	0.0000	0.0000
Age thir	Years thir	0.0000	0.0000	0.0000	0.0000
Age four	Years four	0.0000	0.0000	0.0000	0.0000
Age fiv	Years fiv	0.0000	0.0000	0.0000	0.0000
Age six	Years six	0.0000	0.0000	0.0000	0.0000
Age sev	Years sev	0.0000	0.0000	0.0000	0.0000
Age eigh	Years eigh	0.0000	0.0000	0.0000	0.0000
Age nine	Years nine	0.0000	0.0000	0.0000	0.0000
Age ten	Years ten	0.0000	0.0000	0.0000	0.0000
Age elev	Years elev	0.0000	0.0000	0.0000	0.0000
Age twel	Years twel	0.0000	0.0000	0.0000	0.0000
Age thir	Years thir	0.0000	0.0000	0.0000	0.0000
Age four	Years four	0.0000	0.0000	0.0000	0.0000
Age fiv	Years fiv	0.0000	0.0000	0.0000	0.0000
Age six	Years six	0.0000	0.0000	0.0000	0.0000
Age sev	Years sev	0.0000	0.0000	0.0000	0.0000
Age eigh	Years eigh	0.0000	0.0000	0.0000	0.0000
Age nine	Years nine	0.0000	0.0000	0.0000	0.0000
Age ten	Years ten	0.0000	0.0000	0.0000	0.0000
Age elev	Years elev	0.0000	0.0000	0.0000	0.0000
Age twel	Years twel	0.0000	0.0000	0.0000	0.0000
Age thir	Years thir	0.0000	0.0000	0.0000	0.0000
Age four	Years four	0.0000	0.0000	0.0000	0.0000
Age fiv	Years fiv	0.0000	0.0000	0.0000	0.0000
Age six	Years six				

What Is Claimed Is:

1. A system for generating an on-line report containing user billing and inventory information comprising:

5 a host site connected to at least one user computer terminal via an on-line interconnection, said host site comprising a database for storing the user billing and inventory information, and a processor terminal connected to the on-line interconnection for
10 receiving user report requests and sending reports created in response to the received requests and additional on-line user input, wherein said processor terminal comprises:

15 a view manager arranged to generate a set of function commands which can be selectively launched by user input to: graphically display a list of available views each of which contains a report relating to particular user information stored in a database, create a new view and report, and edit a view and
20 report; and

a data manager arranged to allow input of user defined data for insertion into a requested report.

25 2. The system of claim 1 wherein said view manager comprises a view editor arranged to receive and implement user report editing instructions.

30 3. The system of claim 2 wherein said view editor comprises a plurality of editing commands which are graphically displayed in the graphical user interface.

4. The system of claim 3 wherein said plurality of editing commands comprise a drill down command, a grouping command, a sort command, and a total amount command.

5 5. The system of claim 1 wherein the view manager further comprises a report filter arranged to receive user defined filter values for use as threshold values to selectively control which database information will be included in a report.

10 6. The system of claim 1 wherein the on-line interconnection comprises an Internet connection and web browser.

15 7. The system of claim 1 wherein the graphical user interface comprises JAVA applets and an HTML page.

20 8. A method for generating an on-line report containing user billing and inventory information in response to an inquiry from a user computer terminal via an on-line connection, said method comprising:

generating a graphical user interface for on-line access by the user, said graphical user interface providing a set of function commands which can be selectively launched to: graphically display a list of available views each of which contains a report relating to particular user information stored in a database, create a new view and report, edit a view and report, and allow input of user defined data to be inserted into a report;

30 creating a report based on user responses to

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the set of commands; and
sending the created report to the user
terminal via the on-line connection.

5 9. The method of claim 8 further
comprising providing report editing commands which can
be accessed through the graphical user interface to
specify desired data to be produced in a report.

10 10. The method of claim 9 further
comprising providing report editing commands which can
be accessed through the graphical user interface to
specify a desired report format.

15 11. The method of claim 9 further
comprising providing report editing commands which
allow on-line user control of display, sorting,
accounting, and grouping of report content.

20 12. The method of claim 9 further
comprising providing report editing commands which
allow a user to input content filtering constraints to
limit the quantity of user information produced in a
report.

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Abstract

A database report writer and customer data management system and method provides a GUI type interface to allow users convenient on-line access, such as via the Internet, to customer billing and inventory data in the form of an on-line report. The present invention facilitates on-line creation of report definitions which specify desired data to be produced in a report, and other parameters relating to display, sorting, accounting, grouping, and filtering of report information. The present invention also allows users to create custom database tables and input their own data for display in reports along with billing and inventory data. As a result, the present invention provides the ability to eliminate conventional hardcopy reports typically produced in the form of a billing statement.

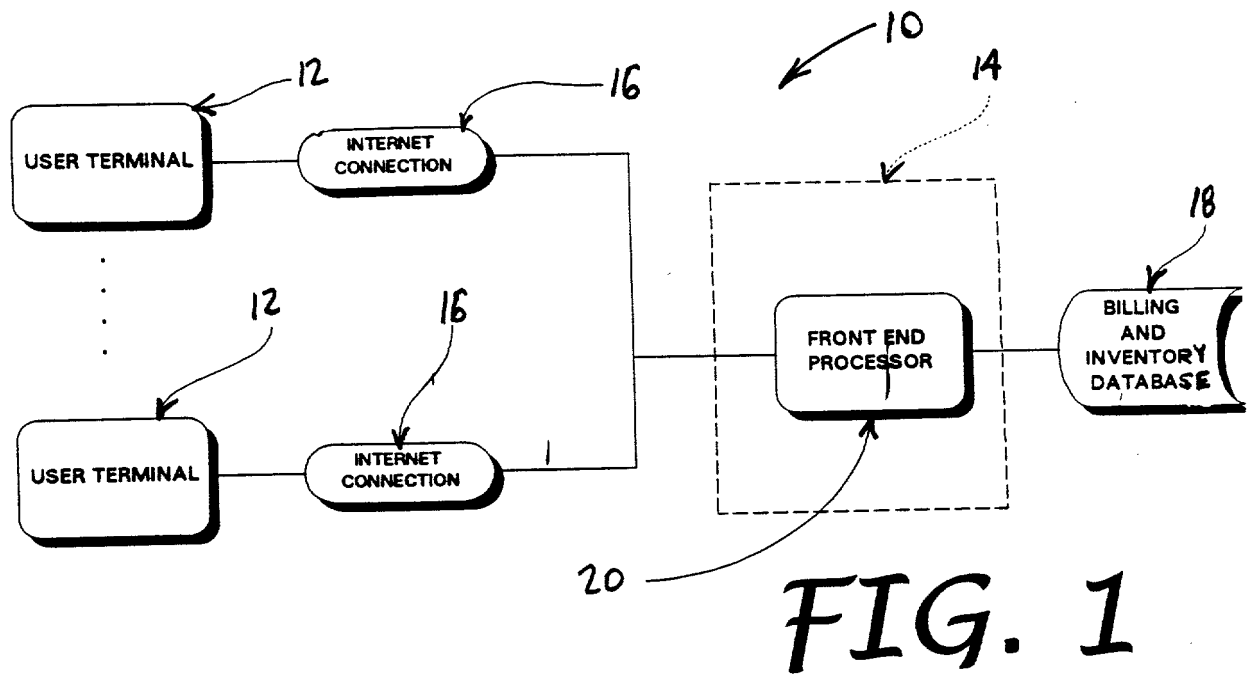
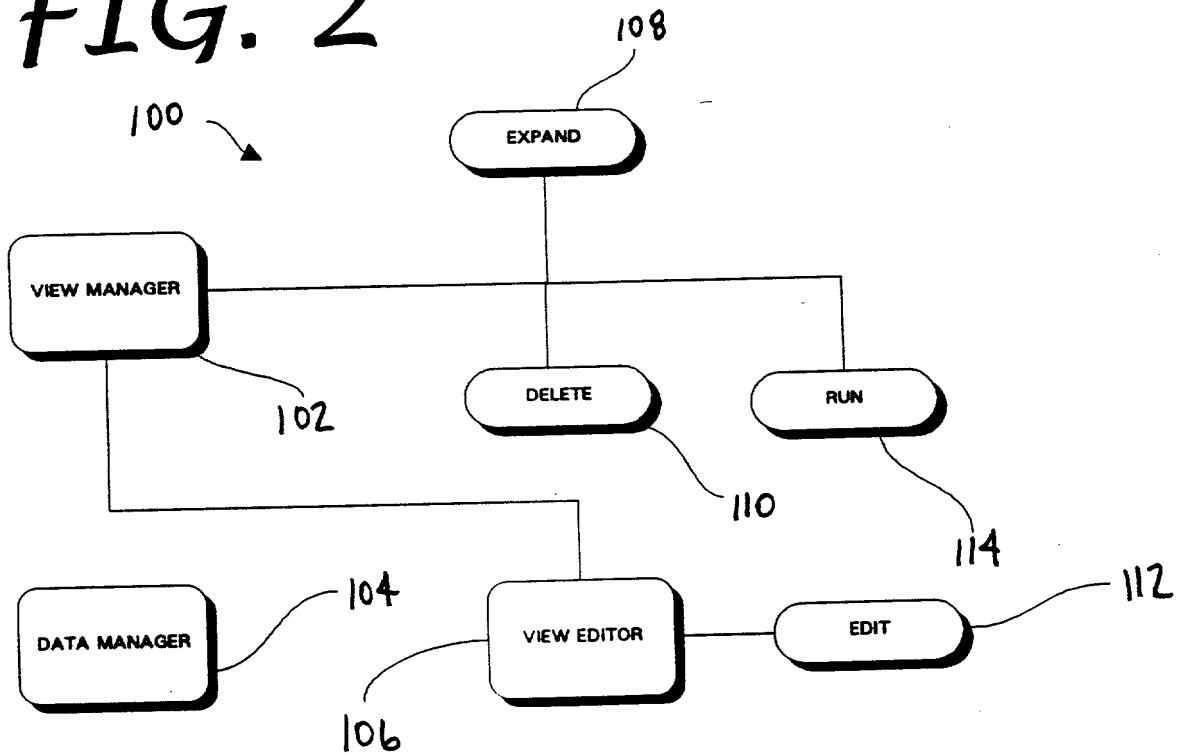
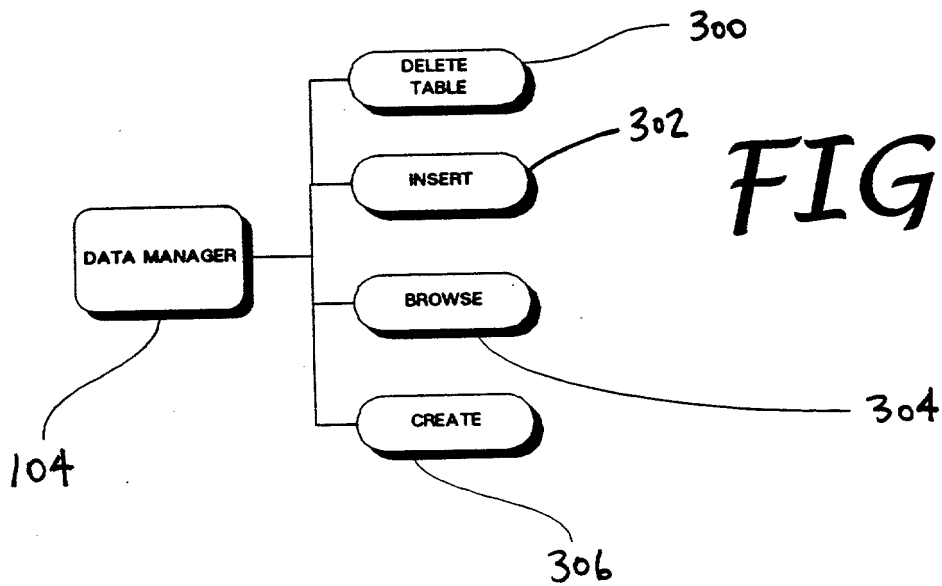
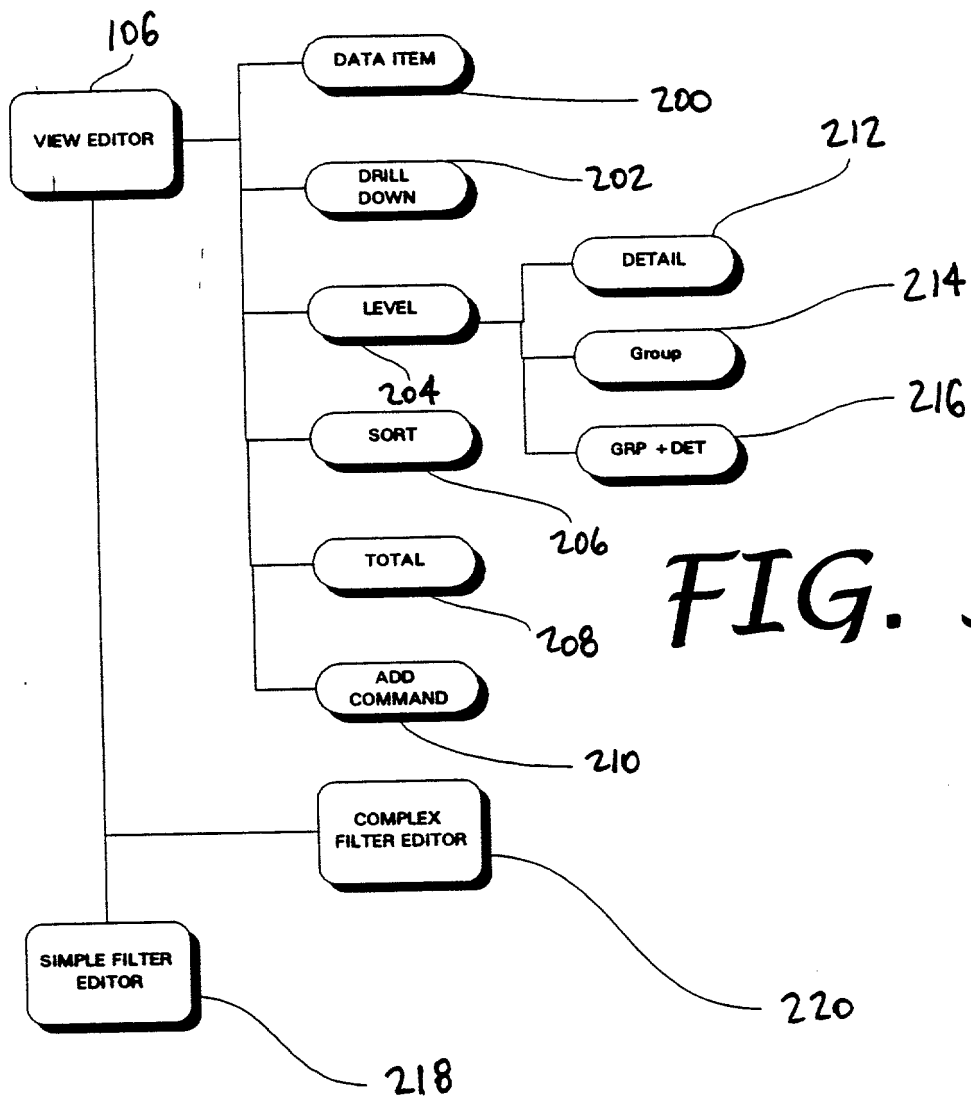
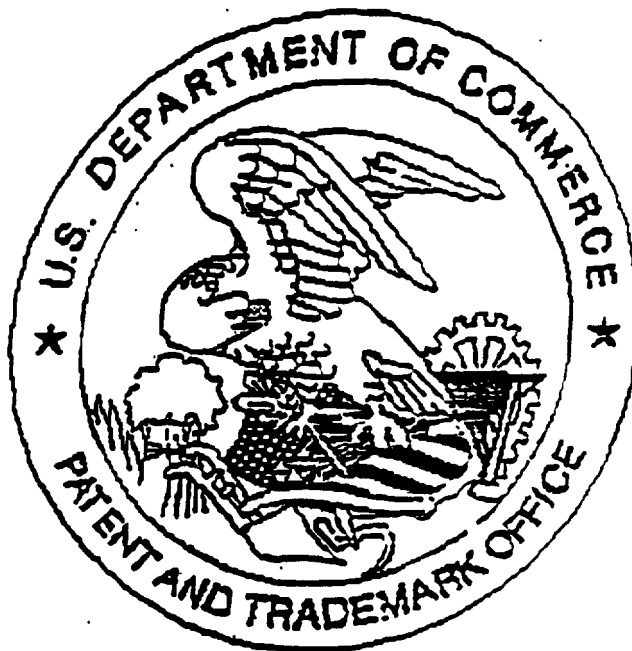


FIG. 2





United States Patent & Trademark Office
Office of Initial Patent Examination – Scanning Division



Application deficiencies found during scanning:

1. Application papers are not suitable for scanning and are not in compliance with 37 CFR 1.52 because:
- ☐ All sheets must be the same size and either A4 (21 cm x 29.7 cm) or 8-1/2" x 11". Pages _____ do not meet these requirements.
 - ☐ Papers are not flexible, strong, smooth, non-shiny, durable, and white.
 - ☐ Papers are not typewritten or mechanically printed in permanent ink on one side.
 - ☐ Papers contain improper margins. Each sheet must have a left margin of at least 2.5 cm (1") and top, bottom and right margins of at least 2.0 cm (3/4").
 - ☐ Papers contain hand lettering.
2. Drawings are not in compliance and were not scanned because:
- ☐ The drawings or copy of drawings are not suitable for electronic reproduction.
 - ☐ All drawings sheets are not the same size. Pages must be either A4 (21 cm x 29.7 cm) or 8-1/2" x 11".
 - ☐ Each sheet must include a top and left margin of at least 2.5 cm (1"), a right margin of at least 1.5 cm (9/16") and a bottom margin of at least 1.0 cm (3/8").
3. Page(s) _____ are not of sufficient clarity, contrast and quality for electronic reproduction.
4. Page(s) _____ are missing.
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